



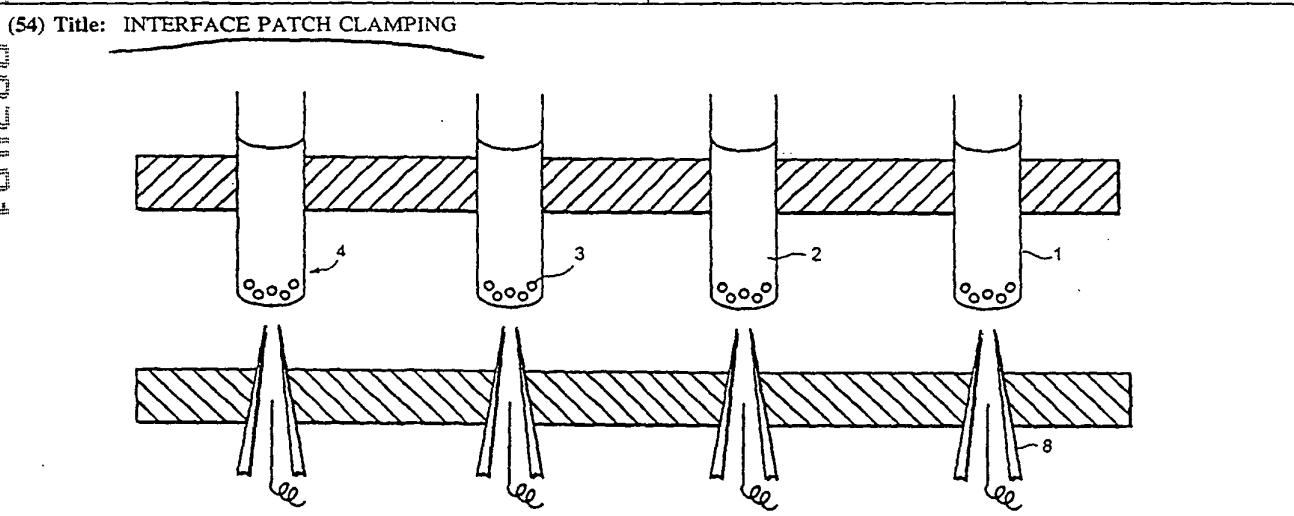
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(57) Abstract

The invention provides a novel development of the conventional patch clamp technique for measurement of whole cell electrical activity. The invention provides for one or more cell or cells to be suspended in a liquid medium at a liquid/air interface (by virtue of the effect of surface tension at the interface) whereby the cell or cells are accessible at the interface to a microstructure electrode (such as a pipette tip) to which a cell can attach to form an electrical seal, for the purpose of whole cell voltage clamp recording. According to the invention the electrode can be caused to form a high resistance electrical seal with a cell suspended in the liquid at the liquid/air interface without the need to press the cell against a solid support surface. The invention also provides apparatus for carrying out the interface patch clamp technique and control logic for operating a computer to carry out the interface patch clamp technique.